

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

CLASS: BE
BRANCH: CHEMICAL ENGINEERING- PLASTICS AND POLYMER

SEMESTER: V
SESSION : MO/2019

SUBJECT : PC5001 POLYMER TECHNOLOGY-II

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

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- Q1 (a) Give the reaction mechanism and stoichiometry ratio of reactant for Resol and Novolac. [3]
(b) What is the function of Hexa? [2]
- Q2 (a) Give the reaction mechanism and the condition for preparation of epoxy resin [3]
epichlorohydrin and bis - phenol A
(b) Write at least five advantages of epoxy resins over phenolics [2]
- Q3 (a) Structurally how polyesters and polycarbonates are similar? Elaborate on a point wise [2]
manner.
(b) What is by far the most important starting material for the preparation of polycarbonate [3]
of the bis-phenol A type?
- Q4 (a) Why polysulphones are less susceptible to oxidation? What other properties do [2]
polysulphones exhibit?
(b) What is the parameter, which gives polycarbonates high values of toughness and damping [3]
capacity over a wide range of temperatures?
- Q5 (a) How do you prepare Melamine formaldehyde resin from its reactants? [2]
(b) On a structural formula basis, elucidate some of the similarities and some of the [3]
differences between polyethylene and polyacetal.
- Q6 (a) What structural attributes are to be considered to support outstanding oxidative stability [2]
and resistance to ozone in case of polycarbonates?
(b) Give the reaction mechanism for the formation of silicon resin from different types of [3]
monomers

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